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URBAN AND LIVESTOCK WASTE FROM REUNION ISLAND: CHARACTERIZATION AND MODELLING OF THEIR TRANSFORMATION IN SOIL

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The objective of this study is to assess the transformations in soil of carbon and nitrogen forms of Exogenous Organic Matters (EOMs): raw materials, mixtures and composts from Reunion Island agricultural and urban waste by using the TAO (Transformation of Added Organic materials) model calibrated on EOMs and substrates of temperate areas. EOMs were studied in terms of chemical and biochemical contents and for their C and N mineralization during incubations in a typical andosol of Colimaçons, Reunion Island. The TAO model was used to predict the transformations of C (very labile, resistant and stable organic C) and N (very labile, resistant and stable organic N, produced and immobilized inorganic N) forms driven by EOMs biochemical data. The C transformations and inorganic N production of most of the tested EOMs are predicted accurately by TAO without any change in calibration formulae. Complementary adjustments using more complete data from laboratory experiments are suggested to correct the tendency to overestimate the C mineralization and the re-mineralization of immobilized N. TAO model appear as a promising tool to optimize the management of urban and livestock waste but complementary fittings have to be submitted in order to suit to the tropical zone application.